

## CLAIMS

1. An adapter coupling for connecting a soil sampler barrel to a drill rod, said adapter coupling comprising a barrel adapter for attaching said adapter coupling to the sampler barrel, a rod adapter for connecting said adapter coupling to the drill rod, and an isolating mechanism to isolate the sampler barrel from any upward vibratory movement of the drill rod so that the sampler barrel receives only downward motion from the drill rod.
2. The adapter coupling as set forth in claim 1, wherein said isolating mechanism includes an isolator box connected to said rod adapter.
3. The adapter coupling as set forth in claim 2, including an isolator pin attached to said barrel adapter.
4. The adapter coupling as set forth in claim 3, wherein said rod adapter drives said isolator pin during a downward stroke of the drill rod.
5. The adapter coupling as set forth in claim 4, wherein said rod adapter lifts away from said isolator pin on an upward stroke of the drill rod while said isolator box maintains a coupling therebetween, allowing relative movement between said rod adapter and said isolator pin.
6. The adapter coupling as set forth in claim 5, wherein said isolator box includes a lip and said isolator pin includes a shoulder.
7. The adapter coupling as set forth in claim 6, including a gap between said lip of said isolator box and said shoulder of said isolator pin, said gap being slightly wider when said rod adapter is in contact with said isolator pin than the total amplitude of a vibration stroke of said drill rod.
8. The adapter coupling as set forth in claim 3, wherein said isolator pin is connected to said barrel adapter with a threaded connection and said threaded connection is torqued with bolts.

9. The adapter coupling as set forth in claim 8, wherein said bolts extend through threaded apertures in said isolator pin and are turned against an end of said barrel adapter.

10. A soil sampling system comprising a drill rod, a sampler barrel and an adapter coupling for connecting said sampler barrel to said drill rod, said adapter coupling including a barrel adapter for attaching said adapter coupling to said sampler barrel, a rod adapter for connecting said adapter coupling to said drill rod, and an isolating mechanism to isolate said sampler barrel from any upward vibratory movement of said drill rod so that said sampler barrel receives only downward motion from said drill rod.

11. The soil sampling system as set forth in claim 10, wherein said isolating mechanism includes an isolator box connected to said rod adapter.

12. The soil sampling system as set forth in claim 11, including an isolator pin attached to said barrel adapter.

13. The soil sampling system as set forth in claim 12, wherein said rod adapter drives said isolator pin during a downward stroke of said drill rod.

14. The soil sampling system as set forth in claim 13, wherein said rod adapter lifts away from said isolator pin on an upward stroke of said drill rod while said isolator box maintains a coupling therebetween, allowing relative movement between said rod adapter and said isolator pin.

15. The soil sampling system as set forth in claim 14, wherein said isolator box includes a lip and said isolator pin includes a shoulder.

16. The soil sampling system as set forth in claim 15, including a gap between said lip of said isolator box and said shoulder of said isolator pin, said gap being slightly wider when said rod adapter is in contact with said isolator pin than the total amplitude of a vibration stroke of said drill rod.

17. The soil sampling system as set forth in claim 12, wherein said isolator pin is connected to said barrel adapter with a threaded connection and said threaded connection is torqued with bolts.

18. The soil sampling system as set forth in claim 17, wherein said bolts extend through threaded apertures in said isolator pin and are turned against an end of said barrel adapter.

19. An adapter coupling for use with a vibratory drill, said adapter coupling comprising a rod adapter for connection to a drill rod, a barrel adapter for connection to a sampler barrel, and an isolating means for isolating movement of said sampler barrel from upward vibratory movement of said drill rod.

20. The adapter coupling as set forth in claim 19, wherein said isolating means includes an isolator box connected to said rod adapter and an isolator pin connected to said barrel adapter.

21. The adapter coupling as set forth in claim 20, wherein said rod adapter drives said isolator pin during a downward stroke of said drill rod.

22. The adapter coupling as set forth in claim 21, wherein said rod adapter is removed from said isolator pin on an upward stroke of the drill rod while said isolator box maintains a coupling therebetween, allowing relative movement between said rod adapter and said isolator pin.

23. The adapter coupling as set forth in claim 20, wherein said isolator box includes a lip and said isolator pin includes a shoulder.

24. The adapter coupling as set forth in claim 23 including a gap between said lip of said isolator box and said shoulder of said isolator pin, said gap being slightly wider when said rod adapter is in contact with said isolator pin than the total amplitude of a vibration stroke of said drill rod.

25. The adapter coupling as set forth in claim 20, wherein said isolator pin is connected to said barrel adapter with a threaded connection that is compressed with bolts extending through threaded apertures in said isolator pin, said bolts being turned against an end of said barrel adapter.